PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 29 June 2001 (29.06.01)	
International application No. PCT/IB00/01322	**Applicant's or agent's file reference** 102784/PRS
International filing date (day/month/year) 05 September 2000 (05.09.00)	**Priority date** (day/month/year) 13 September 1999 (13.09.99)
Applicant USKELA, Sami et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

12 April 2001 (12.04.01)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO **34, chemin des Colombettes** **1211 Geneva 20, Switzerland**	Authorized officer Olivia TEFY
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

To:

SLINGSBY, Philip, Roy
Page White & Farrer
54 Doughty Street
London WC1N 2LS
ROYAUME-UNI

NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and Administrative Instructions, Section 422)

Date of mailing (day/month/year)	
17 January 2002 (17.01.02)	
Applicant's or agent's file reference 102784/PRS	**IMPORTANT NOTIFICATION**
International application No. PCT/IB00/01322	**International filing date** (day/month/year) 05 September 2000 (05.09.00)

1. The following indications appeared on record concerning:

[X] the applicant [ ] the inventor [ ] the agent [ ] the common representative

Name and Address	State of Nationality	State of Residence
NOKIA NETWORKS OY Keilalahdentie 4 FIN-02150 Espoo Finland	FI	FI
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

[ ] the person [X] the name [ ] the address [ ] the nationality [ ] the residence

Name and Address	State of Nationality	State of Residence
NOKIA CORPORATION Keilalahdentie 4 FIN-02150 Espoo Finland	FI	FI
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

[X] the receiving Office
[ ] the International Searching Authority
[X] the International Preliminary Examining Authority
[ ] the designated Offices concerned
[X] the elected Offices concerned
[ ] other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Dominique DELMAS
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and Administrative Instructions, Section 422)

To:

RECEIVED
24 JAN 2002

SLINGSBY, Philip, Roy
Page White & Farrer
54 Doughty Street
London WC1N 2LS
ROYAUME-UNI

Date of mailing (day/month/year)	IMPORTANT NOTIFICATION
17 January 2002 (17.01.02)	
Applicant's or agent's file reference 102784/PRS	
International application No. PCT/IB00/01322	**International filing date** (day/month/year) 05 September 2000 (05.09.00)

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[X] the applicant [ ] the inventor [ ] the agent [ ] the common representative

Name and Address	State of Nationality	State of Residence
NOKIA NETWORKS OY Keilalahdentie 4 FIN-02150 Espoo Finland	FI	FI
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

[ ] the person [X] the name [ ] the address [ ] the nationality [ ] the residence

Name and Address	State of Nationality	State of Residence
NOKIA CORPORATION Keilalahdentie 4 FIN-02150 Espoo Finland	FI	FI
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

[X] the receiving Office
[ ] the International Searching Authority
[X] the International Preliminary Examining Authority
[ ] the designated Offices concerned
[X] the elected Offices concerned
[ ] other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Dominique DELMAS
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

Form PCT/IB/306 (March 1994)

004599460

12

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
102784/PRS		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IB00/01322	05/09/2000	13/09/1999
International Patent Classification (IPC) or national classification and IPC H04L29/06		
Applicant NOKIA NETWORKS OY et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☒ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
12/04/2001	13.12.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Hamer, J Telephone No. +49 89 2399 8827

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB00/01322

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
Description, pages:

1-9 as originally filed

Claims, No.:

1-17 as originally filed

Drawings, sheets:

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 16,17.

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 16,17 are so unclear that no meaningful opinion could be formed (*specify*):
see separate sheet

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos. .

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N) Yes: Claims 1-15

	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-15
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-15
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

III- No Opinion

Claims 16 and 17 are "bagatelle" claims which contain no technical features whatsoever. This type of claim is not catered for in the PCT and the claims should be deleted.

V- Reasoned Statement

1. The subject-matter of claim 1 is concerned with a telecommunications system for receiving from a telecommunications unit a request for data from a target network address. The invention is particularly concerned with the case when e.g. a cellular telephone requests, through the cellular network, information, especially a packet data service such as E-mail or web pages, from a different telecommunications network. Such a request may be unsuccessful for a variety of reasons such as a fault or a traffic overload or the target server being unavailable. In the state of the art, if such a request is unsuccessful, it is up to the requesting terminal of the e.g. cellular network to re-request the data. The disadvantage of this is that more traffic may be generated and delays and costs may ensue. The solution to this problem , proposed in claim 1, is for the telecommunications system associated with the target address which is the source of the requested data to continue to attempt to establish communication with this target address and not the requesting telecommunications unit telecommunications system associated with this terminal. Only when the data can be retrieved will this be signalled to the requesting telecommunications unit. This solves the above mentioned problem by reducing the traffic between the two telecommunications systems.

   Of the documents cited in the international search report,

   PAUL D. BAKER, KAY BREWER: 'Comverse Network Systems Expands Its Intelligent Short Message Service Center's Support For All Types Of Digital Wireless Networks; Gives Wireless Subscribers Easy Access To Wireless Data Services And The Internet' COMVERSE NEWS AND FINANCIAL INFORMATION, [Online] 8 February 1999 (1999-02-08), pages 1-2, XP002133580 Retrieved from the Internet:

<URL:http://www.comverse.com/news/news_990 208.html> [retrieved on 2000-03-17] is generally concerned with WAP enabled handsets.

US-A-5 878 397 (STILLE MATS ET AL) 2 March 1999 (1999-03-02) is concerned with a method of handling a short message service within a single telecommunications system, as is WO 97 41654 A (MCLORINAN ANDREW GEORGE ;TSOUKAS GEORGE JAMES (AU); ERICSSON TELEF) 6 November 1997 (1997-11-06) .

WO 98 58476 A (TELECOM WIRELESS SOLUTIONS INC) 23 December 1998 (1998-12-23) is concerned with a wireless messaging system and

MICHEL MOULY, MARIE-BERNADETTE PAUTET: 'GSM - The System for Mobile Communications' 1992 , CELL & SYS. CORRESPONDENCE , MERCER ISLAND, WA, U.S.A. XP002133582 235920 with error correction in GSM systems.

None of the cited documents discloses the feature that the telecommunications system associated with the target address takes over the re-requesting of data.

As a result, claim 1 involves an inventive step over the available prior art and thus meets the requirements of Articles 33(2) and (3) PCT.

2. The subject-matter of independent claim 15 is essentially the same as that of claim 1, but expressed in terms of method features. Thus for the same reasons outlined above, claim 15 also meets the requirements of Articles 33(2) and (3) PCT.

3. The subject-matter of dependent claims 2 to 14 includes features which further restrict the scope of claim 1. As a result, these claims also meet the requirements of Articles 33(2) and (3) PCT.

VII- Certain Defects

a) The claims do not meet the requirements of Rule 6.2(b) PCT in that they do not contain reference signs.

b) The independent claim does not meet the requirements of Rule 6.3(b) PCT in that it is not divided into the two-part form.

c) The most relevant of the documents cited in the International Search Report should have been referenced and briefly discussed in the description, Rule 5.1(a)(ii), PCT.

INVESTOR IN PEOPLE

Nokia Telecommunications Oy
% Page, White & Farrer
54 Doughty Street
LONDON
WC1N 2LS

RECEIVED
29 JUN 2001

The Patent Office
Patents Directorate

Concept House
Cardiff Road, Newport
South Wales NP10 8QQ

Examiner: 01633 813769
†**E-mail:** John.Betts@patent.gov.uk
Switchboard: 01633 814000
Fax: 01633 814444
Minicom: 08459 222250
DX 722540/41 Cleppa Park 3
http://www.patent.gov.uk

Your Reference: 92250/PRS/VU
Application No: GB 9921583.2

27 June 2001

Dear Sirs

Patents Act 1977: Search Report under Section 17(5)

I enclose two copies of my search report.

Publication

I estimate that, provided you have met all formal requirements, preparations for publication of your application will be completed soon after **31 July 2001**. You will then receive a letter informing you of completion and telling you the publication number and date of publication.

Amendment/withdrawal

If you wish to file amended claims for inclusion with the published application, or to withdraw the application to prevent publication, you must do so before the preparations for publication are completed. **No reminder will be issued.** If you write to the Office less than 3 weeks before the above completion date, please mark your letter prominently: **"URGENT - PUBLICATION IMMINENT"**.

Yours faithfully

John Betts
Examiner

†**Use of E-mail:** Please note that e-mail should be used for correspondence only.

PATENTS • DESIGNS • COPYRIGHT • TRADE MARKS
The Patent Office
INVESTOR IN PEOPLE

Application No: GB 9921583.2 **Examiner:** John Betts
Claims searched: 1-17 **Date of search:** 26 June 2001

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): H4L (LRAB, LDGP, LDGX) H4K (KF422)

Int Cl (Ed.7): H04Q 7/22 G06F17/30

Other: On-line: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
	NONE	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

P.B.5818 - Patentlaan 2
2280 HV Rijswijk (ZH)
☎ +31 70 340 2040
TX 31651 epo nl
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Europäisches Patentamt | European Patent Office | Office européen des brevets

Zweigstelle in Den Haag | Branch at The Hague | Département à La Haye

PAGE WHITE & FARRER
Attn. Mr Philip Roy Slingsby
54 Doughty Street
LONDON WC1N 2LS
UNITED KINGDOM

RECEIVED
- 5 APR 2000

Aktenzeichen/File No./No. du Dossier
RS 103947 GB

Datum/Date
04.04.00

Das Europäische Patentamt übermittelt hiermit den Standardrecherchenbericht zu dem unten bezeichneten Antrag; Kopien der im Recherchenbericht angeführten Schriften werden in der Anlage beigefügt.

The European Patent Office herewith transmits the Standard Search Report relating to the request indicated below; copies of the documents cited in the search report are enclosed.

L'Office Européen des Brevets à l'honneur de vous transmettre ci-joint le Rapport de Recherche concernant la demande désignée ci-dessous; des copies des documents cités sont jointes.

Zeichen und Datum des Antrages Applicant's reference and date Références et date de la demande	92250/PRS
Dokument, Gegenstand der Recherche Document subject of the search Objet de la recherche	GBA 9921583
Einreichungstag Filing date Date de dépôt	13/09/1999
Beanspruchte Priorität Priority claimed Priorité revendiquée	

OFFICE EUROPÉEN DES BREVETS
Pour le Vice-Président,

R. de Bat

European Patent Office

STANDARD SEARCH REPORT

File RS 103947

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
X	PAUL D. BAKER, KAY BREWER: "Comverse Network Systems Expands Its Intelligent Short Message Service Center's Support For All Types Of Digital Wireless Networks; Gives Wireless Subscribers Easy Access To Wireless Data Services And The Internet" COMVERSE NEWS AND FINANCIAL INFORMATION, 'Online! 8 February 1999 (1999-02-08), pages 1-2, XP002133580 Retrieved from the Internet: <URL:http://www.comverse.com/news/news_990208.html> 'retrieved on 2000-03-17! * the whole document *	1-11, 14-16
Y		12,13
Y	US 5 878 397 A (STILLE MATS ET AL) 2 March 1999 (1999-03-02) * column 1, line 7 - column 3, line 55 *	1-16
Y	SAMI HANHIKOSKI, SAMI KRANK: "SMS - Short Message Service" JOHDATUS TIETOKONEVERKKOIHIN HARJOITUSTYÖ, 27 April 1998 (1998-04-27), pages 1-4, XP002133581 Jyväskylä * the whole document *	1-16
Y	WO 97 41654 A (MCLORINAN ANDREW GEORGE ;TSOUKAS GEORGE JAMES (AU); ERICSSON TELEF) 6 November 1997 (1997-11-06) * abstract * * page 1, line 2 - page 5, line 10 *	1-16

-/--

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

H04L
H04Q

The present search report has been drawn up for all claims

Date of completion of the search	Examiner
21 March 2000	Vaskimo, K

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C17)

European Patent Office

STANDARD SEARCH REPORT

File RS 103947

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
Y	WO 98 58476 A (TELECOM WIRELESS SOLUTIONS INC) 23 December 1998 (1998-12-23) * abstract * * page 1, line 1 - page 3, line 18 * * page 4, line 17 - page 7, line 14 * * page 9, line 10 - page 11, line 2 *	1-11, 14-16
A		12,13
A	MICHEL MOULY, MARIE-BERNADETTE PAUTET: "GSM - The System for Mobile Communications" 1992 , CELL & SYS. CORRESPONDENCE , MERCER ISLAND, WA, U.S.A. XP002133582 235920 * page 272, paragraph 5.2.3. - page 277, paragraph 5.2.4. * * page 560, paragraph 8.3.3. - page 566, paragraph 9 *	1-16

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

The present search report has been drawn up for all claims

Date of completion of the search	Examiner
21 March 2000	Vaskimo, K

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C17)

ANNEX TO THE STANDARD SEARCH REPORT NO.

RS 103947

This annex lists the patent family members relating to the patent documents cited in the above-mentioned search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

21-03-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5878397 A	02-03-1999	AU 3563897 A	02-02-1998
		WO 9802005 A	15-01-1998
WO 9741654 A	06-11-1997	AU 2375097 A	19-11-1997
		EP 0864211 A	16-09-1998
WO 9858476 A	23-12-1998	AU 8146798 A	04-01-1999

EPO FORM P0469

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

File No.: JP-13277PCT
Dispatching No.: 443192
Dispatching Date: December, 16 2003

OFFICE ACTION
(translation-in-part)

Patent Application No.: 524327/2001
Examiner: Naoyuki Yazu (8838 5K00)
Patent Attorney: Sohta Asahina (and one other)
Provision to be applied: Article 29, Paragraph 2 and Article 36

The instant application is recognized to be rejected for the following reason. If Applicant has any objection against the reason, Argument should be filed within three months from the dispatching date of the Office Action.

Reason

A. It is recognized that the invention described in the following Claims of the instant application could easily have been made by a person skilled in the art to which the invention pertains, on the basis of an invention referred to the following publications distributed in Japan or foreign countries prior to filing of this application. Therefore, the instant application cannot be allowed under the provision of Article 29, Paragraph 2 of Japanese Patent Law.

Note

Re: Claims 1 to 3, 5 to 14, 15 to 17

Remarks

In a system for transmitting a request for data from a client (a

telecommunication unit of the present invention) to a server (a target of the present invention), providing an alternative server (a request means and a response means of the present invention) between the client and the server, is well-known technique as disclosed in the cited reference 1. Carrying out a retry control in a case of unsuccessful telecommunication by a device on the way of a telecommunication path is also well-known (refer to the cited reference 2).

Further, a telecommunication formation between each of devices is merely a design matter for a person skilled in the art to which the invention pertains (an example by wireless telecommunication is also described in the cited reference 2).

Re: Claim 4

Determining by "an address" as to whether telecommunication with a server is possible or not is also well-known (refer to the cited reference 3).

B. It is recognized that description of Claims is defective in the following points. Therefore, the instant application does not satisfy the requirements provided in Article 36, Paragraphs 6, Item 2 of Japanese Patent Law.

Note

Re: Claims 16 to 17

Descriptions to which drawings are quoted are not clear in meanings.

Thus, inventions according to Claims 16 to 17 are not clear.

Note that as regards the inventions associated with claims other than the claim pointed out in this Office Action there is found no reason for rejection at present. If a reason for rejection is newly found, reason for Rejection will be issued.

[Reference cited]

1. Japanese Unexamined Patent Publication No. 312351/1998
2. Japanese Unexamined Patent Publication No. 18956/1997
3. Japanese Unexamined Patent Publication No. 307852/1996

Note

Examined field: IPC 7th editions H04L 29/02, 12/00
G06F 13/00, H04Q 7/38

These references are not cited in the reason.

The demand must be filed directly with the competent International Preliminary Examining Authority, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/ EP

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only

Identification of IPEA	Date of receipt of DEMAND

Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION

Applicant's or agent's file reference: 102784/PRS

International application No.	International filing date *(day/month/year)*	(Earliest) Priority date *(day/month/year)*
PCT/IB00/01322	05 September 2000 (05.09.00)	13 September 1999 (13.09.99)

Title of invention

SATISFYING DATA REQUESTS IN A TELECOMMUNICATIONS SYSTEM

Box No. II APPLICANT(S)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

NOKIA NETWORKS OY
Keilalahdentie 4
FIN-02150 Espoo
Finland

Telephone No.:

Facsimile No.:

Teleprinter No.:

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
Finland (FI)	Finland (FI)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

USKELA; Sami
Nokia Networks Oy
Keilalahdentie 4
FIN-02150 Espoo
Finland

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
Finland (FI)	Finland (FI)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

RAUTIAINEN; Aapo
Nokia Networks Oy
Keilalahdentie 4
FIN-02150 Espoo
Finland

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
Finland (FI)	Finland (FI)

[X] Further applicants are indicated on a continuation sheet.

International application No.
PCT/IB00/01322

Continuation of Box No. II APPLICANT(S)

If none of the following sub-boxes is used, this sheet should not be included in the demand.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*
LEPPANEN; Eva Maria
Nokia Networks Oy
Keilalahdentie 4
FIN-02150 Espoo
Finland

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
Finland (FI)	Finland (FI)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*
TUDOSE; Lucia
Nokia Networks Oy
Keilalahdentie 4
FIN-02150 Espoo
Finland

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
Romania (RO)	Finland (FI)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*
NIEMINEN; Mari
Nokia Networks Oy
Keilalahdentie 4
FIN-02150 Espoo
Finland

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
Finland (FI)	Finland (FI)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

State *(that is, country)* of nationality:	State *(that is, country)* of residence:

☐ Further applicants are indicated on another continuation sheet.

International application No.
PCT/IB00/01322

Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The following person is [x] agent [ ] common representative

and [x] has been appointed earlier and represents the applicant(s) also for international preliminary examination.

[ ] is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.

[ ] is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

SLINGSBY, Philip Roy
Page White & Farrer
54 Doughty Street
London
WC1N 2LS
United Kingdom

Telephone No.: 020 7831 7929

Facsimile No.: 020 7831 8040

Teleprinter No.: 8955681

[ ] **Address for correspondence:** Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special addr ess to which correspondence should be sent.

Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION

Statement concerning amendments:*

1. The applicant wishes the international preliminary examination **to start on the basis of:**

[x] the international application as originally filed

the description [x] as originally filed
[ ] as amended under Article 34

the claims [x] as originally filed
[ ] as amended under Article 19 (together with any accompanying statement)
[ ] as amended under Article 34

the drawings [x] as originally filed
[ ] as amended under Article 34

2. [ ] The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.

3. [ ] The applicant wishes the start of the international preliminary examination **to be postponed** until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English

[x] which is the language in which the international application was filed.
[ ] which is the language of a translation furnished for the purposes of international search.
[ ] which is the language of publication of the international application.
[ ] which is the language of the translation (to be) furnished for the purposes of international preliminary examination.

Box No. V ELECTION OF STATES

The applicant hereby **elects all eligible States** *(that is, all States which have been designated and which are bound by Chapter II of the PCT)*

excluding the following States which the applicant wishes **not to elect:**

International application No.
PCT/IB00/01322

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:			For International Preliminary Examining Authority use only: received	not received
1. translation of international application	:	sheets	☐	☐
2. amendments under Article 34	:	sheets	☐	☐
3. copy (or, where required, translation) of amendments under Article 19	:	sheets	☐	☐
4. copy (or, where required, translation) of statement under Article 19	:	sheets	☐	☐
5. letter	: 1	sheets	☐	☐
6. other *(specify)*	:	sheets	☐	☐

The demand is also accompanied by the item(s) marked below:

1. [x] fee calculation sheet
2. [ ] separate signed power of attorney
3. [ ] copy of general power of attorney; reference number, if any:
4. [ ] statement explaining lack of signature
5. [ ] nucleotide and or amino acid sequence listing in computer readable form
6. [ ] other *(specify)*:

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).

SLINGSBY, Philip Roy - Authorised Representative

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:
2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):
3. [ ] The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply. [ ] The applicant has been informed accordingly.
4. [ ] The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.
5. [ ] Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

For International Bureau use only

Demand received from IPEA on:

See Notes to the demand form

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference *(if desired) (12 characters maximum)* 102784/PRS

Box No. I TITLE OF INVENTION

SATISFYING DATA REQUESTS IN A TELECOMMUNICATIONS SYSTEM

Box No. II APPLICANT

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

NOKIA NETWORKS OY
Keilalahdentie 4
FIN-02150 Espoo
Finland

☐ This person is also inventor.

Telephone No.

Facsimile No.

Teleprinter No.

State *(that is, country)* of nationality: Finland

State *(that is, country)* of residence: Finland

This person is applicant for the purposes of: ☐ all designated States ☒ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

USKELA; Sami
Nokia Networks Oy
Keilalahdentie 4
FIN-02150 Espoo
Finland

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality: Finland

State *(that is, country)* of residence: Finland

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: ☒ agent ☐ common representative

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

SLINGSBY; Philip Roy
PAGE WHITE & FARRER
54 Doughty Street
London WC1N 2LS
United Kingdom

Telephone No. 020 7831-7929

Facsimile No. 020 7831-8040

Teleprinter No. 8955681

☐ **Address for correspondence:** Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) *(mark the applicable check-boxes; at least one must be marked)*:

Regional Patent

- ☒ AP **ARIPO Patent:** GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, MZ Mozambique, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ EA **Eurasian Patent:** AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ EP **European Patent:** AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ OA **OAPI Patent:** BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT *(if other kind of protection or treatment desired, specify on dotted line)* .....

National Patent *(if other kind of protection or treatment desired, specify on dotted line)*:

- ☒ AE United Arab Emirates
- ☒ AG Antigua and Barbuda
- ☒ AL Albania
- ☒ AM Armenia
- ☒ AT Austria
- ☒ AU Australia
- ☒ AZ Azerbaijan
- ☒ BA Bosnia and Herzegovina
- ☒ BB Barbados
- ☒ BG Bulgaria
- ☒ BR Brazil
- ☒ BY Belarus
- ☒ BZ Belize
- ☒ CA Canada
- ☒ CH and LI Switzerland and Liechtenstein
- ☒ CN China
- ☒ CR Costa Rica
- ☒ CU Cuba
- ☒ CZ Czech Republic
- ☒ DE Germany
- ☒ DK Denmark
- ☒ DM Dominica
- ☒ DZ Algeria
- ☒ EE Estonia
- ☒ ES Spain
- ☒ FI Finland
- ☒ GB United Kingdom
- ☒ GD Grenada
- ☒ GE Georgia
- ☒ GH Ghana
- ☒ GM Gambia
- ☒ HR Croatia
- ☒ HU Hungary
- ☒ ID Indonesia
- ☒ IL Israel
- ☒ IN India
- ☒ IS Iceland
- ☒ JP Japan
- ☒ KE Kenya
- ☒ KG Kyrgyzstan
- ☒ KP Democratic People's Republic of Korea
- ☒ KR Republic of Korea
- ☒ KZ Kazakhstan
- ☒ LC Saint Lucia
- ☒ LK Sri Lanka
- ☒ LR Liberia
- ☒ LS Lesotho
- ☒ LT Lithuania
- ☒ LU Luxembourg
- ☒ LV Latvia
- ☒ MA Morocco
- ☒ MD Republic of Moldova
- ☒ MG Madagascar
- ☒ MK The former Yugoslav Republic of Macedonia
- ☒ MN Mongolia
- ☒ MW Malawi
- ☒ MX Mexico
- ☒ MZ Mozambique
- ☒ NO Norway
- ☒ NZ New Zealand
- ☒ PL Poland
- ☒ PT Portugal
- ☒ RO Romania
- ☒ RU Russian Federation
- ☒ SD Sudan
- ☒ SE Sweden
- ☒ SG Singapore
- ☒ SI Slovenia
- ☒ SK Slovakia
- ☒ SL Sierra Leone
- ☒ TJ Tajikistan
- ☒ TM Turkmenistan
- ☒ TR Turkey
- ☒ TT Trinidad and Tobago
- ☒ TZ United Republic of Tanzania
- ☒ UA Ukraine
- ☒ UG Uganda
- ☒ US United States of America
- ☒ UZ Uzbekistan
- ☒ VN Viet Nam
- ☒ YU Yugoslavia
- ☒ ZA South Africa
- ☒ ZW Zimbabwe

Check-box reserved for designating States which have become party to the PCT after issuance of this sheet:

☐ .....

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. *(Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)*

Supplemental Box *If the Supplemental Box is not used, this sheet should not be included in the request.*

1. If, in any of the Boxes, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No. ..." [indicate the number of the Box] and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:

(i) if more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;

(ii) if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;

(iii) if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;

(iv) if, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;

(v) if, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "patent of addition," or "certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "continuation" or "continuation-in-part": in such case, write "Continuation of Box No. V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;

(vi) if, in Box No. VI, there are more than three earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;

(vii) if, in Box No. VI, the earlier application is an ARIPO application: in such case, write "Continuation of Box No. VI", specify the number of the item corresponding to that earlier application and indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed.

2. If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.

3. If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning non-prejudicial disclosures or exceptions to lack of novelty: in such case, write "Statement concerning non-prejudicial disclosures or exceptions to lack of novelty" and furnish that statement below.

Continuation of Box IV

Agents continued

PALMER, Roger (GB)
RICHARDS, David John (GB)
PENDLEBURY, Anthony (GB)
JENKINS, Peter David (GB)
DRIVER, Virginia Rozanne (GB)
DANIELS, Jeffery Nicholas (GB)
NEOBARD, William John (GB)
SHACKLETON, Nicola (GB)
SLINGSBY, Philip Roy (GB)
HILL, Christopher Michael (GB)
RUUSKANEN, Juha-Pekka (FI)
WILLIAMS, David John (GB)

All of:

PAGE WHITE & FARRER
54 Doughty Street
London WC1N 2LS
United Kingdom

Box No. VI PRIORITY CLAIM ☐ Further priority claims are indicated in the Supplemental Box.

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is: national application: country	regional application:* regional Office	international application: receiving Office
item (1) 13 September 1999	9921583.2	GB		
item (2)				
item (3)				

☐ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) *(only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office)* identified above as item(s): _____

**Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.*

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) *(if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used)* :

ISA / EP

Request to use results of earlier search; reference to that search *(if an earlier search has been carried out by or requested from the International Searching Authority)*:

Date (day/month/year)	Number	Country (or regional Office)
4 April 2000	RS 103947	GB

Box No. VIII CHECK LIST; LANGUAGE OF FILING

This international application contains the following number of sheets:

request	: 5
description (excluding sequence listing part)	: 9
claims	: 3
abstract	: 1
drawings	: 2
sequence listing part of description	:
Total number of sheets	: 20

This international application is accompanied by the item(s) marked below:

1. ☐ fee calculation sheet
2. ☐ separate signed power of attorney
3. ☒ copy of general power of attorney; reference number, if any: GPA00/0066
4. ☐ statement explaining lack of signature
5. ☐ priority document(s) identified in Box No. VI as item(s):
6. ☐ translation of international application into (language):
7. ☐ separate indications concerning deposited microorganism or other biological material
8. ☐ nucleotide and/or amino acid sequence listing in computer readable form
9. ☐ other *(specify)*:

Figure of the drawings which should accompany the abstract: 2

Language of filing of the international application: English

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

SLINGSBY; Philip Roy - Authorised Representative

For receiving Office use only

1. Date of actual receipt of the purported international application:
2. Drawings: ☐ received: ☐ not received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:
4. Date of timely receipt of the required corrections under PCT Article 11(2):
5. International Searching Authority (if two or more are competent): ISA /
6. ☐ Transmittal of search copy delayed until search fee is paid.

For International Bureau use only

Date of receipt of the record copy by the International Bureau:

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

To:
SLINGSBY, Philip, Roy
Page White & Farrer
54 Doughty Street
London WC1N 2LS
ROYAUME-UNI

NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

Date of mailing (day/month/year)	
22 March 2001 (22.03.01)	
Applicant's or agent's file reference 102784/PRS / CF	**IMPORTANT NOTICE**
International application No. PCT/IB00/01322	**International filing date** (day/month/year) 05 September 2000 (05.09.00)
Priority date (day/month/year) 13 September 1999 (13.09.99)	
Applicant NOKIA NETWORKS OY et al	

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
   AU,KP,KR,US

   In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
   AE,AG,AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,BZ,CA,CH,CN,CR,CU,CZ,DE,DK,DM,DZ,EA,EE,EP,ES,
   FI,GB,GD,GE,GH,GM,HR,HU,ID,IL,IN,IS,JP,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MA,MD,MG,MK,
   MN,MW,MX,MZ,NO,NZ,OA,PL,PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,TZ,UA,UG,UZ,VN,YU,
   The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on
   22 March 2001 (22.03.01) under No. WO 01/20873

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a **demand for international preliminary examination** must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the **national phase**, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer
J. Zahra

Telephone No. (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
102784/PRS		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/IB 00/01322	05/09/2000	13/09/1999
Applicant		
NOKIA NETWORKS OY et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

   [ ] contained in the international application in written form.

   [ ] filed together with the international application in computer readable form.

   [ ] furnished subsequently to this Authority in written form.

   [ ] furnished subsequently to this Authority in computer readble form.

   [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 2

   [X] as suggested by the applicant.

   [ ] None of the figures.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

INTERNATIONAL SEARCH REPORT

International Application No
[redacted]/IB 00/01322

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
WPI Data, PAJ, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PAUL D. BAKER, KAY BREWER: "Comverse Network Systems Expands Its Intelligent Short Message Service Center's Support For All Types Of Digital Wireless Networks; Gives Wireless Subscribers Easy Access To Wireless Data Services And The Internet" COMVERSE NEWS AND FINANCIAL INFORMATION, 'Online! 8 February 1999 (1999-02-08), pages 1-2, XP002133580 Retrieved from the Internet: <URL:http://www.comverse.com/news/news_990208.html> 'retrieved on 2000-03-17! the whole document	1-11, 15-17
Y	---	12-14
Y	US 5 878 397 A (STILLE MATS ET AL) 2 March 1999 (1999-03-02) column 1, line 7 -column 3, line 55	1-17
	--- -/--	

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
18 December 2000	22/12/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Vaskimo, K

2

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	SAMI HANHIKOSKI, SAMI KRANK: "SMS - Short Message Service" JOHDATUS TIETOKONEVERKKOIHIN HARJOITUSTYÖ, 27 April 1998 (1998-04-27), pages 1-4, XP002133581 Jyväskylä the whole document	1-17
Y	WO 97 41654 A (MCLORINAN ANDREW GEORGE ;TSOUKAS GEORGE JAMES (AU); ERICSSON TELEF) 6 November 1997 (1997-11-06) abstract page 1, line 2 -page 5, line 10	1-17
Y	WO 98 58476 A (TELECOM WIRELESS SOLUTIONS INC) 23 December 1998 (1998-12-23) abstract page 1, line 1 -page 3, line 18 page 4, line 17 -page 7, line 14 page 9, line 10 -page 11, line 2	1-11, 15-17
A		12-14
A	MICHEL MOULY, MARIE-BERNADETTE PAUTET: "GSM - The System for Mobile Communications" 1992 , CELL & SYS. CORRESPONDENCE , MERCER ISLAND, WA, U.S.A. XP002133582 235920 page 272, paragraph 5.2.3. -page 277, paragraph 5.2.4. page 560, paragraph 8.3.3. -page 566, paragraph 9	1-17

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
[redacted]/IB 00/01322

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5878397 A	02-03-1999	AU 3563897 A	02-02-1998
		WO 9802005 A	15-01-1998
WO 9741654 A	06-11-1997	AU 2375097 A	19-11-1997
		EP 0864211 A	16-09-1998
WO 9858476 A	23-12-1998	AU 8146798 A	04-01-1999
		US 6134432 A	17-10-2000

INTERNATIONAL SEARCH REPORT

International Application No
[redacted]/IB 00/01322

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
WPI Data, PAJ, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PAUL D. BAKER, KAY BREWER: "Comverse Network Systems Expands Its Intelligent Short Message Service Center's Support For All Types Of Digital Wireless Networks; Gives Wireless Subscribers Easy Access To Wireless Data Services And The Internet" COMVERSE NEWS AND FINANCIAL INFORMATION, 'Online! 8 February 1999 (1999-02-08), pages 1-2, XP002133580 Retrieved from the Internet: <URL:http://www.comverse.com/news/news_990208.html> 'retrieved on 2000-03-17! the whole document	1-11, 15-17
Y	---	12-14
Y	US 5 878 397 A (STILLE MATS ET AL) 2 March 1999 (1999-03-02) column 1, line 7 -column 3, line 55	1-17
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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

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"E" earlier document but published on or after the international filing date

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
18 December 2000	22/12/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Vaskimo, K

Form PCT/ISA/210 (second sheet) (July 1992)

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Y	WO 97 41654 A (MCLORINAN ANDREW GEORGE ;TSOUKAS GEORGE JAMES (AU); ERICSSON TELEF) 6 November 1997 (1997-11-06) abstract page 1, line 2 -page 5, line 10	1-17
Y	WO 98 58476 A (TELECOM WIRELESS SOLUTIONS INC) 23 December 1998 (1998-12-23) abstract page 1, line 1 -page 3, line 18 page 4, line 17 -page 7, line 14 page 9, line 10 -page 11, line 2	1-11, 15-17
A		12-14
A	MICHEL MOULY, MARIE-BERNADETTE PAUTET: "GSM - The System for Mobile Communications" 1992 , CELL & SYS. CORRESPONDENCE , MERCER ISLAND, WA, U.S.A. XP002133582 235920 page 272, paragraph 5.2.3. -page 277, paragraph 5.2.4. page 560, paragraph 8.3.3. -page 566, paragraph 9	1-17

INTERNATIONAL SEARCH REPORT

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International Application No
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		WO 9802005 A	15-01-1998
WO 9741654 A	06-11-1997	AU 2375097 A	19-11-1997
		EP 0864211 A	16-09-1998
WO 9858476 A	23-12-1998	AU 8146798 A	04-01-1999
		US 6134432 A	17-10-2000

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
22 March 2001 (22.03.2001)

PCT

(10) International Publication Number
WO 01/20873 A1

(51) International Patent Classification[7]: H04L 29/06

(21) International Application Number: PCT/IB00/01322

(22) International Filing Date:
5 September 2000 (05.09.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
9921583.2 13 September 1999 (13.09.1999) GB

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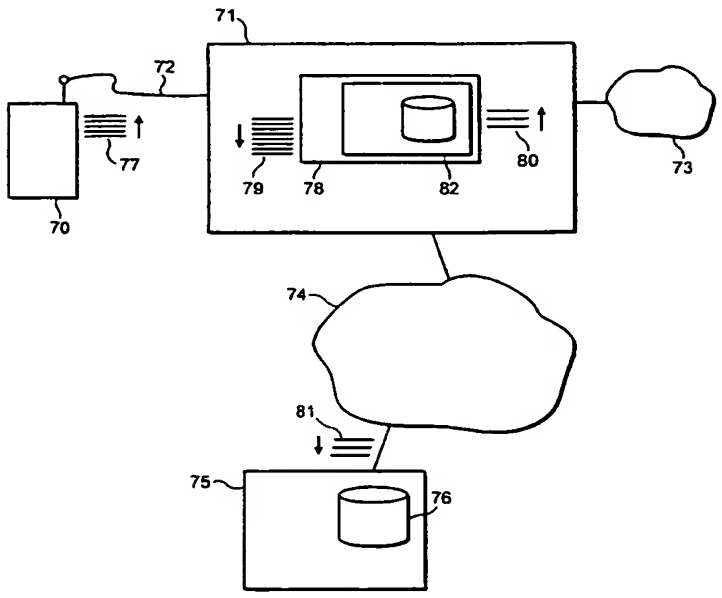
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: SATISFYING DATA REQUESTS IN A TELECOMMUNICATIONS SYSTEM



(57) Abstract: A telecommunications system for receiving from a telecommunications unit a request for data from a target network address, the system comprising: request means for receiving the first request and transmitting a request for the data to the target address; and response means for, on receiving the data from the target address, transmitting the data to the telecommunications unit; and wherein the request means comprises completion means for, if it is determined that the request to the target address is not satisfied: attempting to establish communication with the target address, and if it is determined that such communication is possible transmitting an indication to the telecommunications unit.

WO 01/20873 A1

Published:
— *With international search report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

SATISFYING DATA REQUESTS IN A TELECOMMUNICATIONS SYSTEM

This invention relates to a telecommunications system having means for attempting to satisfy requests for data. The telecommunications system could, for example, be a cellular telephone system.

Figure 1 is a simplified schematic diagram of a cellular telephone system. A cellular telephone 1 can communicate by radio with a base station 2 of a cellular network indicated at 3. The cellular network is connected to other telecommunications networks such as a circuit switched public telephone network 4 and a packet switched network such as the internet 5. By means of the radio connection to the cellular network, and the routing and control equipment in the cellular network 3, the cellular telephone can communicate with other telecommunications units such as another cellular telephone 10, a land-line telephone 11 or a terminal 12 connected to the internet. The terminal 12 could communicate with the cellular telephone 1 for any available packet data service such as e-mail or supply of world-wide web (WWW) pages.

In a number of packet-based services, of which WWW is one example, data held on one terminal (the target terminal) is requested by another terminal. If the target terminal is able to meet the request then it transmits the data towards the requesting terminal and the data can then be routed to the requesting terminal by the intermediate network. It may happen that due to the state of the network or the target terminal the request for data cannot be satisfied. This may, for example, occur if the network is unable to route the request to the target terminal - due to a fault or a traffic overload - or if the target terminal itself is unavailable or too busy to deal with the request. In these circumstances the request might not be satisfied. For instance, a terminal such as cellular telephone 1 may request a WWW page from WWW server 13 connected to the internet. If the server 13 is busy then the request might not be satisfied, and the requested WWW page might not be supplied to the requesting terminal 1. In such a situation, where the

requesting terminal's request is not satisfied, the requesting terminal may transmit another request for the data. Such re-requesting may be provided as a feature of data software such as a web-browser operating on the terminal 1, in a similar manner to such features on personal computers with wire-line links to the internet.

The inventors of the present invention have recognised that the approach described above for re-requesting data can have several disadvantages in a system in which the requesting terminal is connected by radio to the network via which the data is to be provided. First, in such an environment the radio message carrying the repeated request from the requesting terminal generates additional radio traffic which may cause additional radio interference with other users - especially in a system such as the proposed W-CDMA system in which more than one local user can transmit on the same radio frequency at the same time. Second, there may be a considerable delay before the target terminal is available to provide the data and several re-requests may be needed before the data is provided. In the approach described above the requesting terminal remains connected by radio so as to make those requests - this again increases network traffic, and may also mean that the user's phone bill is increased.

According to one aspect of the present invention there is provided a telecommunications system for receiving from a telecommunications unit a request for data from a target network address, the system comprising: request means for receiving the first request and transmitting a request for the data to the target address; and response means for, on receiving the data from the target address, transmitting the data to the telecommunications unit; and wherein the request means comprises completion means for, if it is determined that the request to the target address is not satisfied: attempting to establish communication with the target address, and if it is determined that such communication is possible transmitting an indication to the telecommunications unit.

The system could be arranged so that the request completion means is not automatically activated when a request is made by the telecommunications unit. The request completion means could be activated only if the request is not satisfied. If a request is not satisfied the telecommunications unit could inquire of its user (for example in response to a message from the telecommunications system) whether the request completion means is to be activated.

The telecommunications system could comprise a buffer for storing the said data until the telecommunications unit is available to receive it.

According to a second aspect of the present invention there is provided a method for operating a radio telecommunications network, comprising the steps of: receiving by radio from a telecommunications unit a request for data from a target network address; transmitting a request for the data to the target address; on receiving the data from the target address, transmitting the data to the telecommunications unit; and if it is determined that the request to the target address is not satisfied: attempting to establish communication with the target address, and if it is determined that such communication is possible transmitting an indication to the telecommunications unit.

The transmitting of the said request to the target address may involve a message generated by the telecommunications unit being forwarded to the target address or may involve another message generated by the system being forwarded to the target address.

The said attempting to establish communication with the target address may involve polling the target address to determine whether it is capable of data communication to meet the request or may involve repeating the request.

The said indication may be an indication that the target address (or a terminal at that address) is capable of data communication, or may be an indication comprising the requested data or substitute data. If the requested data is to be

transmitted to the telecommunications unit, especially if it is to be transmitted after an attempt to establish communication as mentioned above, then it may be pushed by the system to the telecommunications unit, for example by means of the "push" facility of the wireless application protocol (WAP).

The request could be queued at a terminal or associated equipment at the target address. The data could then be provided by when its turn arises in the corresponding queue.

Suitably the said attempting to establish communication comprises repeating the transmission of the request to the target address. The said determination that such communication is possible may be made on receipt of the said data from the target address and the said transmitting of an indication comprises transmitting the data to the telecommunications unit. Alternatively, or in addition, the said attempting to establish communication may comprises polling the target address to determine whether communication can be made with the target address.

Preferably an internet protocol link can be supported between the telecommunications unit and the target address. A terminal addressable by means of the target address is preferably adapted for packet data communication by means of the target address. Such a terminal may be a world-wide web server or other data server. Such a terminal may comprise a store capable of storing data for transmission over a packet link. Preferably an internet protocol link adapted for use over a radio link can be supported between the telecommunications system and the telecommunications unit.

The telecommunications unit is suitably capable of communicating by radio with the telecommunications system. The telecommunications unit may be a mobile telephone.

The telecommunications system is preferably a cellular telecommunications system.

The said data preferably comprises hypertext transfer protocol data.

The said target address is preferably a universal resource locator address.

The completion means is preferably capable of re-establishing a connection with the telecommunications unit in order for the said indication to be carried to the telecommunications unit.

In each aspect of the invention the mobile unit may, for example, be a radio telephone.

The present invention will now be described by way of example with reference to the accompanying drawings, in which:

figure 1 illustrates a cellular telephone system; and

figure 2 illustrates the architecture of a specific aspect of a cellular telephone system.

Figure 2 illustrates a mobile station 70 in connection with a cellular telephone network 71 via a radio link 72. The cellular telephone network is connected to other networks 73, 74. In this example, network 73 is a circuit switched (CS) network such as a public switched telephone network (PSTN), and network 74 is a packet switched (PS) network such as the internet. The cellular telephone network 71 may be capable of providing the mobile station with a connection to a terminal in the CS network or the PS network so that the mobile station can exchange CS data (such as conventional voice traffic) or PS data (such as data packets) with the terminal.

A terminal 75 is connected to the packet switched network 74. The terminal 75 is accessible by means of its address in the network, which may suitably be an IP address or URL. The terminal 75 suitably includes a storage means 76 such as a hard disc or other electronic storage medium that stores data. The terminal 75 may be configured to transmit data from the storage means to another location in

response to a request for that data. One example of such a system is for the terminal 75 to represent a world-wide web (WWW) server and for the storage means 76 to store web pages. Then requests for web pages that are addressed to the server 75 and that specify the address of an originating terminal may be routed to the server 75 by the network 74. On receiving a request the server generates a response message that is addressed to the originating terminal and that contains the requested page and transmits that message towards the originating terminal over the network 74. The response message is directed by the network 74 to the originating terminal which then decodes the message and displays or otherwise processes the page data.

The mobile station 70 may be capable of supporting a PS network protocol stack such as TCP/IP (transmission control protocol / internet protocol) by means of which it may be able to establish a connection via the cellular telephone network 71 to the PS network 74, and communicate with the web server 75. The protocol stack supported by the mobile station may be a conventional protocol stack such as standard TCP/IP or may be a protocol stack that is enhanced for use over radio links such as link 72 by tolerating higher error rates and/or longer gaps in communications than are normally tolerated for fixed data links. In the latter case, which is illustrated in figure 2, the enhanced stack is used at the mobile station (at 77) and runs to a gateway unit 78 in the cellular network which operates the enhanced stack (at 79) for its communications with the mobile station and a conventional stack (at 80) for its communications with the PS network 74. A communicating unit connected to the PS network (such as server 75) correspondingly uses the conventional stack (at 81).

Instead of TCP/IP other suitable network protocols or protocol stacks could be used.

The mobile station 70 may make a request for data to a unit such as server 75 in the PS network. If the server 75 or a link to it is busy then the request may be rejected or not answered, and the data will not be supplied to the mobile station

70. As explained above, it would be desirable for there to be a means for such a request to be satisfied.

Cellular network 71 includes a request completion unit 82. The request completion unit 82 is illustrated as a distinct unit in figure 2 but it could in practice be integrated with another network unit and/or provided by means of suitable software rather than dedicated hardware. The purpose of the request completion unit is to attempt completion of unanswered requests for packet data by the mobile station 70. If the mobile station 70 requests data (e.g. a web page) from an object terminal (e.g. server 76) that cannot satisfy the request, for example because it is down (inoperative), busy or unreachable the request completion unit repeats the request automatically. It is hoped that the requested data will be provided in response to that request, whereupon that data can be forwarded to the mobile station 70 so as to meet its request for the data. If the data is still not provided the request completion unit may repeat the request again.

The request completion unit may determine that a request has not been satisfied by means of one or both of:

i. no response to a request having been received after a preset time period;

ii. a message having been received indicating that the request cannot be satisfied (for example, indicating that the object terminal is busy or unreachable);

or by another means such as by the receipt of an appropriate error message.

In order for the request completion unit to perform its function it should be aware of request messages from the mobile station 70 and responses to those messages, and/or of return messages indicating that requests from the mobile station cannot be satisfied. For the first of those cases the network 71 is preferably configured so that when the mobile station 70 issues a request for packet data (for example a request for a web page), that request is transmitted to the request completion unit 82. The request completion unit 82 may then either:

i. generates a corresponding request (for the same data and from the same source as are specified in the request from the mobile station) and transmits that request to the PS network 75; or

ii. forwards the request directly on to the PS network 75 having logged it.

Then, if the request is satisfied by a response from the object terminal in network 75 (for example server 76) the resulting data is forwarded, possibly via completion unit 82, to the mobile station. But if the request is not satisfied after a preset period or if a return message indicating an error or unreachable condition is received then the completion unit may take action to repeat the request. The request completion unit includes a store for storing data on outstanding requests.

Instead of repeating the request the request completion unit could poll the address to which the request was directed to determine when the unit at that address was again accessible, and then notify the mobile station 70, which generated the request, that the unit was accessible. The mobile station 70 could then repeat the request itself if necessary.

The user could be given an altering message, for example as a visual message, a beep or a ringing tone, when the data has been or can be received by the terminal. The terminal could be capable of displaying a list of addresses from which data had been unsuccessfully requested but which are now available for providing data.

The system described above has significant advantages over other approaches, such as relying on the mobile station 70 to repeat requests for the wanted data. If the mobile station 70 repeats requests for the wanted data, that involves increased traffic over the air interface to the cellular network 70. That causes increased signalling load in the network and, in a system in which radio communication by the mobile station 70 may interfere with transmissions of other mobile stations (as in the proposed wideband code division multiple access (W-CDMA) system) increased inter-user interference.

The request completion unit may provide additional functionality, especially in a system that included the general packet radio service (GPRS) or the like. For instance, if there is a delay before the requested data can be provided or before the request completion unit is able to indicate that the object terminal is able to accept requests, the user terminal 70 may have dropped its traffic connection with the network 71. In that case the request completion unit may be able to re-establish that connection, for example by means of a mobile terminated PDP context activation procedure.

It will be appreciated that the cellular network could be operable according to any suitable protocol, for example the GSM (Global System for Mobile Communications) system, the proposed W-CDMA system or derivatives thereof.

The mobile station could be a mobile telephone - which could be provided with software to support web browsing or the like, or could be connected to a personal computer to provide that device with radio network connectivity. In particular, the mobile telephone could have mobile data communicator functionality.

The present invention may include any feature or combination of features disclosed herein either implicitly or explicitly or any generalisation thereof, irrespective of whether it relates to the presently claimed invention. In view of the foregoing description it will be evident to a person skilled in the art that various modifications may be made within the scope of the invention.

CLAIMS

1. A telecommunications system for receiving from a telecommunications unit a request for data from a target network address, the system comprising:

request means for receiving the first request and transmitting a request for the data to the target address; and

response means for, on receiving the data from the target address, transmitting the data to the telecommunications unit;

and wherein the request means comprises completion means for, if it is determined that the request to the target address is not satisfied:

i. attempting to establish communication with the target address, and

ii. if it is determined that such communication is possible transmitting an indication to the telecommunications unit.

2. A telecommunications system as claimed in claim 1, wherein the said attempting to establish communication comprises repeating the transmission of the request to the target address.

3. A telecommunications system as claimed in claim 2, wherein the said determination that such communication is possible is made on receipt of the said data from the target address and the said transmitting of an indication comprises transmitting the data to the telecommunications unit.

4. A telecommunications system as claimed in claim 1, wherein the said attempting to establish communication comprises polling the target address to determine whether communication can be made with the target address.

5. A telecommunications system as claimed in any preceding claim, wherein an internet protocol link can be supported between the telecommunications unit and the target address.

6. A telecommunications system as claimed in claim 5, wherein an internet protocol link adapted for use over a radio link can be supported between the telecommunications system and the telecommunications unit.

7. A telecommunications system as claimed in any preceding claim, wherein the telecommunications unit is capable of communicating by radio with the telecommunications system.

8. A telecommunications system as claimed in claim 7, wherein the telecommunications unit is a mobile telephone.

9. A telecommunications system as claimed in any preceding claim, wherein the telecommunications system is a cellular telecommunications system.

10. A telecommunications system as claimed in any preceding claim, wherein the data comprises hypertext transfer protocol data.

11. A telecommunications system as claimed in any preceding claim, wherein the target address is a universal resource locator address.

12. A telecommunications system as claimed in any preceding claim, wherein the completion means is capable of re-establishing a connection with the telecommunications unit in order for the said indication to be carried to the telecommunications unit.

13. A telecommunications system as claimed in any preceding claim, wherein the said indication is sent by means of a data push facility.

14. A telecommunications system as claimed in any preceding claim, wherein the telecommunications unit is capable of alerting a user of the terminal that the said data is available.

15. A method for operating a radio telecommunications network, comprising the steps of:

receiving by radio from a telecommunications unit a request for data from a target network address;

transmitting a request for the data to the target address;

on receiving the data from the target address, transmitting the data to the telecommunications unit; and

if it is determined that the request to the target address is not satisfied:

i. attempting to establish communication with the target address, and

ii. if it is determined that such communication is possible transmitting an indication to the telecommunications unit.

16. A telecommunications system substantially as herein described with reference to figure 2 of the accompanying drawings.

17. A method for operating a telecommunications system substantially as herein described with reference to figure 2 of the accompanying drawings.

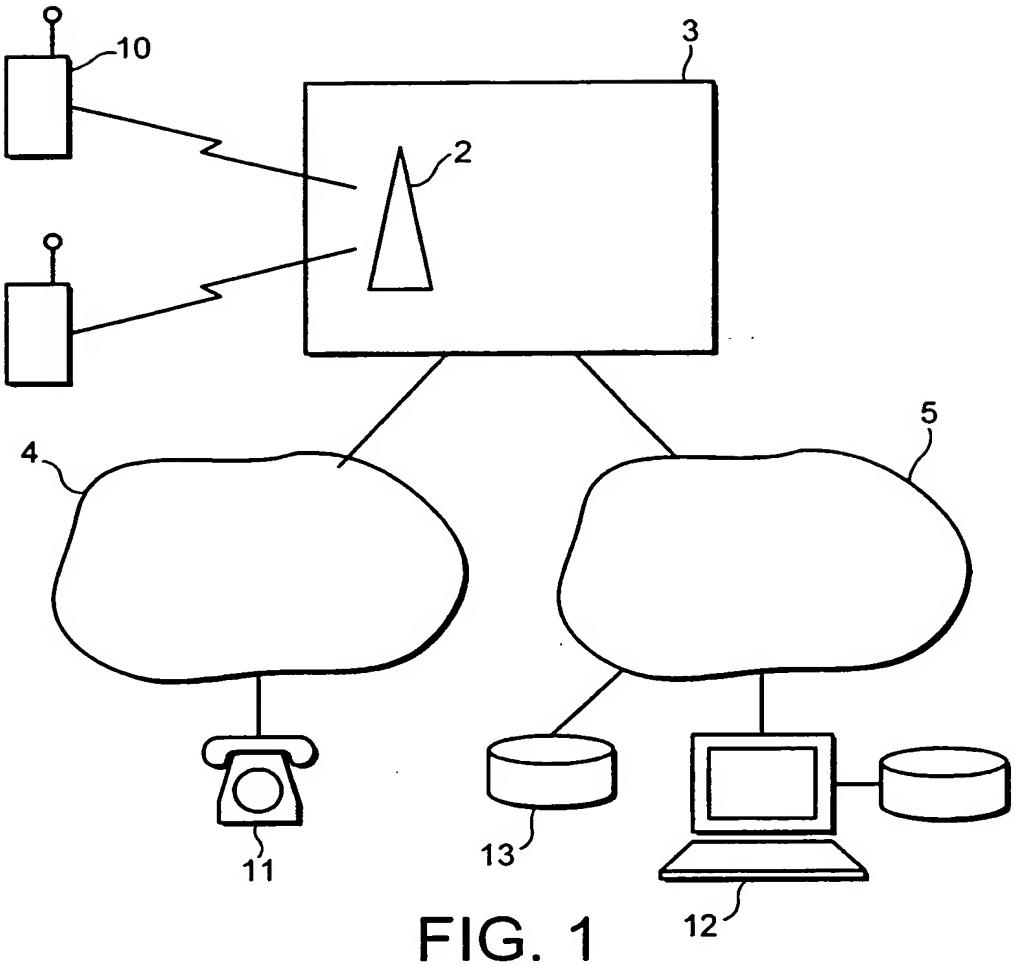


FIG. 1

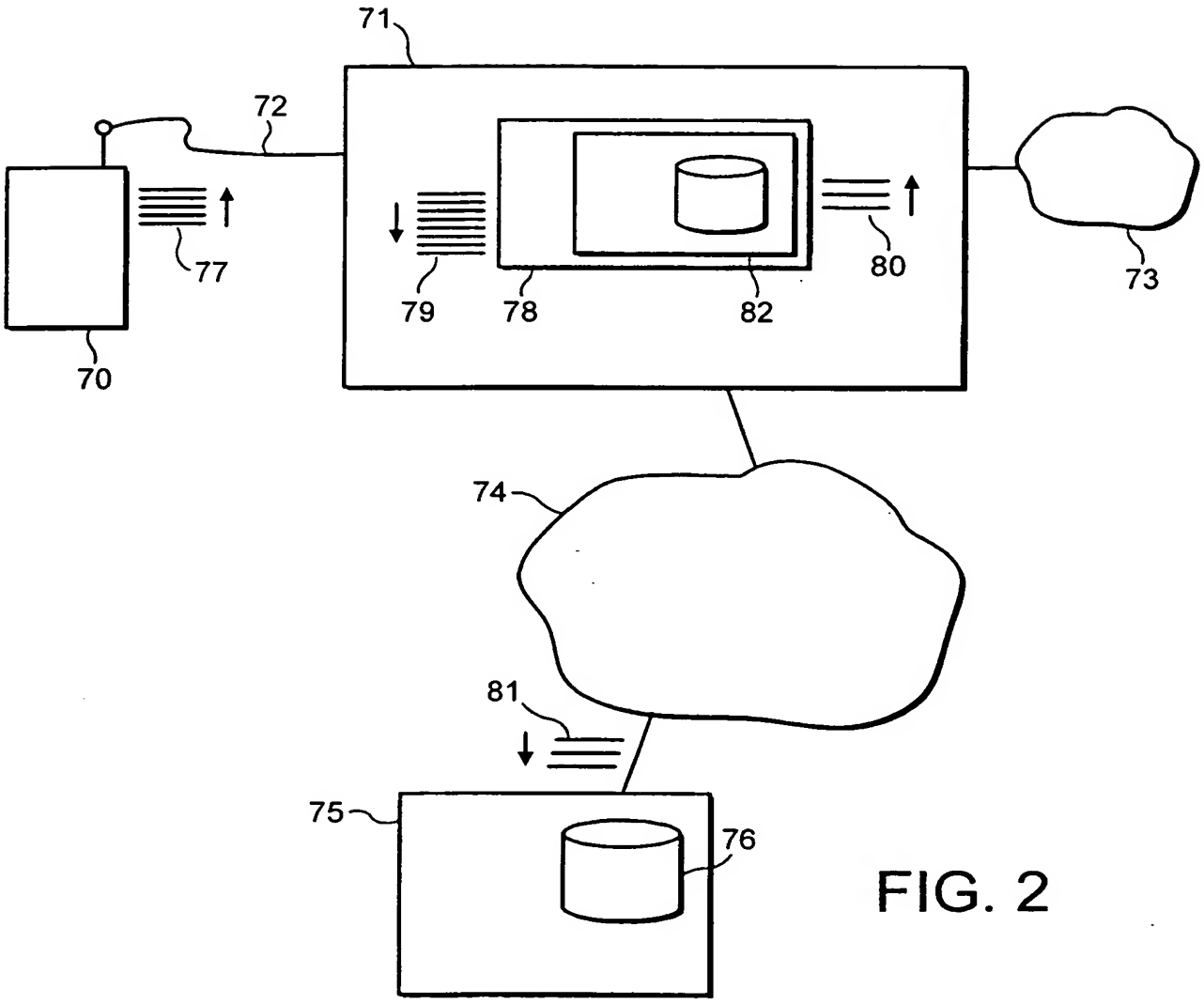


FIG. 2

INTERNATIONAL SEARCH REPORT

Int[redacted] l Application No
PCT/IB 00/01322

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
WPI Data, PAJ, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	PAUL D. BAKER, KAY BREWER: "Comverse Network Systems Expands Its Intelligent Short Message Service Center's Support For All Types Of Digital Wireless Networks; Gives Wireless Subscribers Easy Access To Wireless Data Services And The Internet" COMVERSE NEWS AND FINANCIAL INFORMATION, 'Online! 8 February 1999 (1999-02-08), pages 1-2, XP002133580 Retrieved from the Internet: <URL:http://www.comverse.com/news/news_990208.html> 'retrieved on 2000-03-17! the whole document	1-11, 15-17
Y	---	12-14
Y	US 5 878 397 A (STILLE MATS ET AL) 2 March 1999 (1999-03-02) column 1, line 7 -column 3, line 55	1-17
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[X] Further documents are listed in the continuation of box C.

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° Special categories of cited documents :

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Date of the actual completion of the international search	Date of mailing of the international search report
18 December 2000	22/12/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Vaskimo, K

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
Y	SAMI HANHIKOSKI, SAMI KRANK: "SMS - Short Message Service" JOHDATUS TIETOKONEVERKKOIHIN HARJOITUSTYÖ, 27 April 1998 (1998-04-27), pages 1-4, XP002133581 Jyväskylä the whole document	1-17
Y	WO 97 41654 A (MCLORINAN ANDREW GEORGE ;TSOUKAS GEORGE JAMES (AU); ERICSSON TELEF) 6 November 1997 (1997-11-06) abstract page 1, line 2 -page 5, line 10	1-17
Y	WO 98 58476 A (TELECOM WIRELESS SOLUTIONS INC) 23 December 1998 (1998-12-23) abstract page 1, line 1 -page 3, line 18 page 4, line 17 -page 7, line 14 page 9, line 10 -page 11, line 2	1-11, 15-17
A		12-14
A	MICHEL MOULY, MARIE-BERNADETTE PAUTET: "GSM - The System for Mobile Communications" 1992 , CELL & SYS. CORRESPONDENCE , MERCER ISLAND, WA, U.S.A. XP002133582 235920 page 272, paragraph 5.2.3. -page 277, paragraph 5.2.4. page 560, paragraph 8.3.3. -page 566, paragraph 9	1-17

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[redacted]on patent family members

Inte[redacted]d Application No
PC[redacted]B 00/01322

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5878397 A	02-03-1999	AU 3563897 A	02-02-1998
		WO 9802005 A	15-01-1998
WO 9741654 A	06-11-1997	AU 2375097 A	19-11-1997
		EP 0864211 A	16-09-1998
WO 9858476 A	23-12-1998	AU 8146798 A	04-01-1999
		US 6134432 A	17-10-2000